AMENDMENTS TO THE CLAIMS

1-38. (Canceled)

39. (Previously Presented) A printed circuit board for providing crosstalk compensation in an electrical connector, comprising:

a plurality of conductive traces;

a first compensation structure providing a first crosstalk compensation signal having a first magnitude to a first of the plurality of conductive traces; and

a second compensation structure providing a second crosstalk compensation signal having a second magnitude to the first of the plurality of conductive traces;

wherein a ratio of the first magnitude to the second magnitude varies with frequency.

40. (Previously Presented) The printed circuit board of Claim 39, wherein the first compensation structure comprises a capacitor that includes a first dielectric constant material having a first rate of decline with frequency, and wherein the second compensation structure comprises a capacitor that includes a second dielectric constant material having a second rate of decline with frequency, and wherein a difference between the first rate of decline and the second rate of decline is in the range of about 0.15 to about 0.45 per decade of frequency.

41. (Previously Presented) The printed circuit board of Claim 40, wherein the first rate of decline is about 0.2 per decade of frequency across the frequency range of 1 MHz to 1 GHz.

42. (Previously Presented) The printed circuit board of Claim 40, wherein the first rate of decline is about 0.4 per decade of frequency across the frequency range of 1 MHz to 1 GHz.

43. (Previously Presented) The printed circuit board of Claim 40, wherein the second rate of decline is substantially flat with frequency across the frequency range of 1 MHz to 1 GHz.

44. (Previously Presented) The printed circuit board of Claim 39, wherein the first compensation structure comprises a capacitor that includes a high slope dielectric constant material.

45. (Previously Presented) The printed circuit board of Claim 43, wherein the second compensation structure comprises a capacitor that includes a low slope dielectric constant material.

46. (Previously Presented) The printed circuit board of Claim 39, wherein the first crosstalk compensation signal and the second crosstalk compensation signal have different polarities and wherein a time delay is present between the first and second compensation signals.

47. (Withdrawn) A method of designing an electrical connector, the method comprising:

providing a first compensation signal that varies with frequency at a first rate to a conductor of the electrical connector;

providing a second compensation signal that varies with frequency at a second rate, that is different than the first rate, to the conductor of the electrical connector; and

selecting the first and second rates to reduce the near-end crosstalk on the conductor in the 1 MHz to 100 MHz frequency range when a high crosstalk plug is used in the electrical connector and to reduce the near-end crosstalk on the conductor connector at frequencies above 250 MHz when a low crosstalk plug is used in the electrical connector.

48. (Withdrawn) The method of Claim 47, wherein providing a first compensation signal that varies with frequency at a first rate comprises providing at least one capacitor in the electrical connector that includes a dielectric constant material having a slope of at least 0.15 per decade of frequency.

49. (Withdrawn - Currently Amended) The ~~printed circuit board~~ <u>method</u> of Claim 48, wherein providing a second compensation signal that varies with frequency at a second rate comprises providing at least one capacitor in the electrical connector that includes a dielectric constant material that is substantially flat with frequency.

50. (Withdrawn) The method of Claim 47, wherein providing a first compensation signal that varies with frequency at a first rate comprises providing a first compensation structure that comprises a capacitor that includes a first dielectric constant material having a first rate of decline with frequency, and wherein providing a second compensation signal that varies with frequency at a second rate comprises providing a second compensation structure that comprises a capacitor that includes a second dielectric constant material having a second rate of decline with frequency, and wherein a difference between the first rate of decline and the second rate of decline is in the range of about 0.15 to about 0.45 per decade of frequency.

51-55. (Canceled)

56. (Previously Presented) A printed circuit board for an electrical connector, the printed circuit board comprising:

a plurality of conductors;

a first capacitor electrically connected to a first of the conductors, the first capacitor having a first dielectric with a first dielectric constant slope; and

a second capacitor electrically connected to the first of the conductors, the second capacitor having a second dielectric with a second dielectric constant slope,

wherein a difference between the first dielectric constant slope and the second dielectric constant slope is at least 0.15 per decade of frequency.

57. (Previously Presented) The printed circuit board of Claim 56, wherein one of the first dielectric constant slope and the second dielectric constant slope is substantially constant across the frequency range of about 1 MHz to about 1 GHz.

58. (Withdrawn) A method of designing an electrical connector, the method comprising:

providing a first compensation stage having a first capacitive response as a function of frequency;

providing a second compensation stage having a second capacitive response as a function of frequency;

wherein the first compensation stage and the second compensation stage provide a net compensation, and wherein the first capacitive response as a function of frequency and the second capacitive response as a function of frequency are selected to provide increased net compensation levels at low frequencies and to provide decreased net compensation levels at higher frequencies.

59. (New) A printed circuit board comprising:

a plurality of conductive paths that extend from a plurality of respective inputs of said printed circuit board to a plurality of respective outputs of said printed circuit board;

a first compensation stage for capacitively coupling crosstalk compensation having a first polarity onto a first path of said plurality of conductive paths, said first compensation stage including at least one first capacitive element that includes a first dielectric constant material that has a first rate of change with frequency; and

a second compensation stage for capacitively coupling crosstalk compensation having a polarity opposite the first polarity onto said first path of said plurality of conductive paths, said second compensation stage including at least one second capacitive element that includes a second dielectric constant material that has a second rate of change with frequency, wherein the first rate of change and the second rate of change differ by between about 0.15 to about 0.45 per decade of frequency.

60. (New) The printed circuit board of Claim 59, wherein the first rate of change is about 0.2 per decade of frequency across the frequency range of 1 MHz to 1 GHz.

61. (New) The printed circuit board of Claim 59, wherein the first rate of change is about 0.4 per decade of frequency across the frequency range of 1 MHz to 1 GHz.

62. (New) The printed circuit board of Claim 59, wherein the second rate of change is substantially flat with frequency across the frequency range of 1 MHz to 1 GHz.

63. (New) The printed circuit board of Claim 59, wherein the first and second rates of change are pre-selected to reduce the near-end crosstalk on said first path of said plurality of

conductive paths in the 1 MHz to 100 MHz frequency range when a high crosstalk plug is electrically connected to said plurality of respective inputs, and to reduce the near-end crosstalk on said first path of said plurality of conductive paths at frequencies above 250 MHz when a low crosstalk plug is electrically connected to said plurality of respective inputs.

64. (New) An apparatus comprising:

a printed circuit board;

a plurality of contacts for electrical connection with a mating connector, said plurality of contacts being mounted to said printed circuit board;

a first stage of compensation including a first capacitor having a first dielectric with a first dielectric constant;

a first conductive path electrically connecting said first capacitor to a portion of a first contact of said plurality of contacts, which portion is intended to make electrical contact with the mating connector;

a second stage of compensation including a second capacitor having a second dielectric with a second dielectric constant, different than said first dielectric constant; and

a second conductive path electrically connecting said second capacitor to said portion of said first contact of said plurality of contacts.

65. (New) The apparatus of claim 64, wherein said plurality of contacts are spring wire contacts.

66. (New) The apparatus of claim 64, wherein said first capacitor is an interdigital capacitor.

67. (New) The apparatus of claim 64, wherein said first capacitor is a plate capacitor.

68. (New) The apparatus of claim 64, wherein said second capacitor is a component that is surface mounted to said printed circuit board.

69. (New) The apparatus of claim 64, wherein said first capacitor and said second capacitor are connected to said printed circuit board.

70. (New) The apparatus of claim 69, wherein said printed circuit board includes multiple stacked substrates, and wherein said first capacitor is formed on one or more surfaces of said multiple stacked substrates.

71. (New) The apparatus of claim 70, wherein said first capacitor is an interdigital capacitor.

72. (New) The apparatus of claim 70, wherein said first capacitor is a plate capacitor.

73. (New) The apparatus of claim 70, wherein said second capacitor is a component that is surface mounted to said printed circuit board.

74. (New) The apparatus of claim 69, wherein said printed circuit board includes multiple stacked substrates, wherein a first substrate of said multiple stacked substrates serves as said first dielectric with said first dielectric constant, and wherein a second substrate of said multiple stacked substrates serves as said second dielectric with said second dielectric constant.

75. (New) The apparatus of claim 74, wherein said printed circuit board includes four stacked substrates, two substrates having said first dielectric constant and two other substrates having said second dielectric constant.

76. (New) The apparatus of claim 74, wherein said printed circuit board includes five stacked substrates, two substrates having said first dielectric constant and two other substrates having said second dielectric constant, and a fifth substrate having a first portion with said first dielectric constant and a second portion with said second dielectric constant.

77. (New) The apparatus of claim 64, wherein said printed circuit board is a first printed circuit board and further comprising a second printed circuit board, wherein said first capacitor is connected to said first printed circuit board and wherein said second capacitor is connected to said second printed circuit board.

78. (New) The apparatus of claim 77, wherein said first printed circuit board includes multiple stacked first substrates, wherein at least one of said stacked first substrates serves as said first dielectric with said first dielectric constant, wherein said second printed circuit board includes multiple stacked second substrates, and wherein at least one of said stacked second substrates serves as said second dielectric with said second dielectric constant.

79. (New) The apparatus of claim 64, wherein said plurality of contacts extend away from said printed circuit board, and include at least one crossover, where an ordering of said plurality of contacts is changed prior to free ends of said plurality of contacts.

80. (New) The apparatus of claim 64, wherein said plurality of contacts have fixed ends mounted to said printed circuit board and free ends opposite said fixed ends, and wherein said first conductive path passes through said free end of said first contact of said plurality of contacts.

81. (New) The apparatus of claim 80, wherein said second conductive path passes through said fixed end of said first contact of said plurality of contacts.

82. (New) The apparatus of Claim 64, further comprising:

a modular jack housing for housing said printed circuit board, said modular jack housing having an opening for receiving the mating connector.

83. (New) The apparatus of Claim 64, wherein said second dielectric is lower in rate of decline with frequency than said first dielectric.

84. (New) The apparatus of claim 64, wherein said first dielectric constant is about 4.0 at 1MHz with a rate of decline being about 0.4 per decade of frequency between 1MHz and 1GHz.

85. (New) The apparatus of claim 84, wherein said second dielectric constant is about 4.0 at 1 MHz and remains constant across a frequency range of 1MHz to 1GHz.

86. (New) The apparatus of claim 64, wherein said second dielectric constant is about 4.0 at 1 MHz and remains constant across a frequency range of 1MHz to 1GHz.

87. (New) The apparatus of claim 64, wherein said first dielectric constant is in the range of 3.0 to 5.0 at 1MHz with a rate of decline being about 0.4 per decade of frequency between 1MHz and 1GHz.

88. (New) The apparatus of claim 87, wherein said second dielectric constant is in the range of 3.0 to 5.0 at 1 MHz and remains constant across a frequency range of 1MHz to 1GHz.

89. (New) The apparatus of claim 64, wherein said second dielectric constant is in the range of 3.0 to 5.0 at 1MHz and remains constant across a frequency range of 1MHz to 1GHz.

90. (New) The apparatus of claim 64, wherein the difference in the decline rate of said first dielectric and said second dielectric is in the range of 0.15 to 0.45 per decade of frequency.

91. (New) The apparatus of claim 64, wherein said first stage of compensation further includes a third capacitor having said first dielectric with said first dielectric constant, and said second stage of compensation includes a fourth capacitor having said second dielectric with said second dielectric constant, further comprising:

a third conductive path electrically connecting said third capacitor to a portion of a second contact of said plurality of contacts, which portion is intended to make electrical contact with the mating connector; and

a fourth conductive path electrically connecting said fourth capacitor to said portion of said second contact of said plurality of contacts, wherein said fourth conductive path is longer than said third conductive path.

92. (New) The apparatus of claim 91, wherein said plurality of contacts have fixed ends mounted to said printed circuit board and free ends opposite said fixed ends, and wherein said third conductive path passes through said free end of said second contact of said plurality of contacts.

93. (New) The apparatus of claim 92, wherein said fourth conductive path passes through said fixed end of said second contact of said plurality of contacts.

94. (New) The apparatus of claim 91, further comprising:

a fifth conductive path electrically connecting said first capacitor to a portion of a third contact of said plurality of contacts, which portion is intended to make electrical contact with the mating connector; and

a sixth conductive path electrically connecting said second capacitor to said portion of said third contact of said plurality of contacts, wherein said sixth conductive path is longer than said fifth conductive path.

a seventh conductive path electrically connecting said third capacitor to a portion of a fourth contact of said plurality of contacts, which portion is intended to make electrical contact with the mating connector; and

a eighth conductive path electrically connecting said fourth capacitor to said portion of said fourth contact of said plurality of contacts, wherein said eighth conductive path is longer than said seventh conductive path.

95. (New) The apparatus of claim 94, wherein said plurality of contacts have fixed ends mounted to said printed circuit board and free ends opposite said fixed ends, wherein said first conductive path passes through said free end of said first contact of said plurality of contacts, wherein said third conductive path passes through said free end of said second contact of said plurality of contacts, wherein said fifth conductive path passes through said free end of said third contact of said plurality of contacts, and wherein said seventh conductive path passes through said free end of said fourth contact of said plurality of contacts.

96. (New) The apparatus of claim 95, wherein said second conductive path passes through said fixed end of said first contact of said plurality of contacts, wherein said fourth conductive path passes through said fixed end of said second contact of said plurality of contacts, wherein said sixth conductive path passes through said fixed end of said third contact of said plurality of contacts, and wherein said eighth conductive path passes through said fixed end of said fourth contact of said plurality of contacts.

97. (New) The apparatus of claim 64, wherein said second conductive path is longer than said first conductive path